

REMARKS

Claims 1-4, 16, 18, 20, and 26 are presently pending in the application.

Claims 6-15, 17, 19, 21-25, 27, and 28 have been canceled. Claim 1 has been amended to incorporate subject matter from claim 20, and claim 16 has been amended to correct the dependency. Claim 20 has been amended to delete 1,3,4-thiadiazole compounds having formula (7) as possible sulfur-based additives. No new matter has been added by these amendments, and entry is respectfully requested.

In the Office Action, the Examiner has rejected claims 6-19 under 35 U.S.C. § 102(a) or (b) as being anticipated by or under 35 U.S.C. § 103(a) as being unpatentable over European Patent Application No. 1,104,800 ("EP '800"). The Examiner has also rejected claims 6-19 under 35 U.S.C. § 102(a) or (b) as being anticipated by or under 35 U.S.C. § 103(a) as being unpatentable over Japanese Patent No. 2000-034491 ("JP '491"). Additionally, claims 1-4 and 6-28 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,569,818 of Nakazato et al. ("Nakazato") in view of U.S. Patent No. 4,216,100 of Yaffe ("Yaffe") or U.S. Patent No. 4,761,482 of Karol ("Karol"). The Examiner has also rejected claims 1-4 and 6-28 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,617,286 of Sato et al. ("Sato") in view of Yaffe or Karol. Finally, the Examiner has rejected claims 1-4 and 6-28 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,638,897 of Ogano et al. ("Ogano") in view of Yaffe or Karol. Applicant respectfully traverses these rejections and the arguments in support thereof as follows, and respectfully requests reconsideration and withdrawal of the rejections.

Rejections Under § 102(a), § 102 (b), and § 103(a) Based on EP '800

Regarding claims 6-19, the Examiner maintains that EP '800 teaches or suggests all of the claimed elements for the reasons set forth previously on the record, which need not be repeated. The Examiner acknowledges that EP '800 does not teach or suggest the elements of claim 1, namely, a lubricating oil composition in which component (C) may be a (C-1) thiazole compound, (C-2) thiadiazole compound, or (C-6) sulfurized ester compound. Applicant respectfully traverses these rejections as follows.

By this amendment, claims 6-15, 17, and 19 have been canceled, rendering the rejections of these claims moot. Further, claims 16 and 18 have been amended to depend from claim 1, which the Examiner acknowledges is not anticipated by or obvious over EP '800.

Accordingly, EP '800 does not teach or suggest the elements of the present claims, and reconsideration and withdrawal of the § 102 and § 103 rejections based on EP '800 are respectfully requested.

Rejections Under § 102(a), § 102 (b), and § 103(a) Based on JP '491

Regarding claims 6-19, the Examiner maintains that JP '491 teaches or suggests all of the claimed elements for the reasons set forth previously on the record, which need not be repeated. The Examiner inherently acknowledges that JP '491 does not teach or suggest the elements of claim 1 or the claims which depend there from. Applicant respectfully traverses these rejections as follows.

By this amendment, claims 6-15, 17, and 19 have been canceled, rendering the rejections of these claims moot. Further, claims 16 and 18 have been amended to depend from claim 1, which the Examiner acknowledges is not anticipated by or obvious over JP '491. Accordingly, JP '491 does not teach or suggest the elements of the present claims, and reconsideration and withdrawal of the § 102 and § 103 rejections based on JP '491 are respectfully requested.

Rejection Under 35 U.S.C. § 103(a) Based on Nakazato in view of Yaffe or Karol

Regarding claims 1-4 and 6-28, the Examiner argues that Nakazato discloses a lubricating oil composition having a low phosphorus content of 0.01 to 0.1 weight %, a sulfur content of 0.01 to 0.3 weight % and a sulfated ash (metal content) of 0.1 to 1 weight %, which is comprised of: (a) a major amount of mineral base oil having a low sulfur content of at most 0.1 weight %, preferably at most 0.005 weight %, (b) an ashless alkenyl or alkyl-succinimide dispersant or derivative thereof including borated succinimides in an amount of 0.01 to 0.3 weight % in terms of nitrogen atom content, (c) a metal-containing detergent such as an alkali metal or an alkaline earth metal salt of an alkyl salicylic acid in an amount of about 0.2 to 7 weight %, and which may include other metal detergents such as sulfonate detergents, (d) a zinc dialkyl-dithiophosphate in an amount of 0.01 to 0.1 weight % in terms of phosphorus content, and (e) an oxidation inhibitor selected from the group consisting of a phenol compound and an amine compound in an amount of 0.01 to 5 weight %. Nakazato allegedly teaches that the composition may be used in internal combustion engines. The Examiner notes that the open ended "comprising" language in the present claims allows for the addition of other additives to

the oil compositions. The Examiner further argues that Nakazato teaches that the lubricating oil composition may contain other auxiliary additives such as metal-inactivating agents, and that such additives may be incorporated in amounts from 0.001 to 3 weight %. The Examiner acknowledges that Nakazato does not teach the specifically claimed thiadiazole compounds recited in claims 20-24, but takes the position that such compounds are known in the art, as evidenced by Yaffe or Karol. Therefore, the Examiner concludes that it would have been obvious to include such conventional thiadiazole compounds in the lubricant compositions of Nakazato. Applicant respectfully traverses this rejection as follows.

By this amendment, claims 6-15, 17, 19, 21-25, 27, and 28 have been canceled and thus the rejection of these claims is rendered moot. Claims 2-4, 16, 18, 20, and 26 are dependent on amended claim 1, which recites a lubricating oil composition containing at least one sulfur-based additive component (C) which may be (C-1) a thiazole compound, (C-2), a thiadiazole compound which may be a 1,2,4- or 1,4,5-thiadiazole compound having formula (8) or (9), or (C-6) a sulfurized ester compound. Nakazato generally teaches thiadiazole compounds in col. 8, line 2, but does not teach or suggest the specifically claimed compounds. Further, Yaffe and Karol do not cure the deficiencies with Nakazato, since neither reference teaches or suggests the claimed compounds. Both references teach 1,3,4-thiadiazole compounds (see, Yaffe col. 1, line 57 and Karol col. 1, line 51), but neither teaches the claimed 1,2,4- or 1,4,5-thiadiazole compounds. Accordingly, the proposed combination of Nakazato in view of Yaffe or Karol does not teach or suggest all of the elements of claim 1 or any claim which depends there from, and reconsideration and withdrawal of the § 103(a) rejection based on Nakazato in view of Yaffe or Karol are respectfully requested.

Rejection Under 35 U.S.C. § 103(a) Based on Sato in view of Yaffe or Karol

Regarding claims 1-4 and 6-28, the Examiner argues that Sato discloses a lubricating oil composition for continuously variable transmissions which comprises a lubricating base oil made of a mineral oil and/or a synthetic oil formulated with a phosphorus-based wear preventative additive (A) a metal detergent additive (B), and an ashless dispersant additive (C). Component (A) allegedly includes phosphate esters and phosphite esters and the metal detergent additive (B) allegedly includes overbased calcium salicylates and sulfonates having a TBN ranging from 10-450 mg KOH/g. Sato allegedly teaches that the metal detergent is preferably in an amount of 100-1000 ppm as metal content based on the weight of the composition, and the Examiner argues

that Sato allows for the addition of other additives to the composition, including non-borated imide ashless dispersants and metal deactivator compounds, including benzotriazole, thiadiazoles and derivatives thereof. Therefore, the Examiner concludes that Sato teaches the claimed compositions. The Examiner acknowledges that Sato does not teach the specifically claimed thiadiazole compounds recited in claims 20-24, but takes the position that such compounds are known in the art, as evidenced by Yaffe or Karol. Therefore, the Examiner concludes that it would have been obvious to include such conventional thiadiazole compounds in the lubricant compositions of Sato. Applicant respectfully traverses this rejection as follows.

By this amendment, claims 6-15, 17, 19, 21-25, 27, and 28 have been canceled and thus the rejection of these claims is rendered moot. Claims 2-4, 16, 18, 20, and 26 are dependent on amended claim 1, which recites a lubricating oil composition containing at least one sulfur-based additive component (C) which may be (C-1) a thiazole compound, (C-2), a thiadiazole compound which may be a 1,2,4- or 1,4,5-thiadiazole compound having formula (8) or (9), or (C-6) a sulfurized ester compound. Sato generally teaches thiadiazole compounds and derivatives thereof in col. 6, lines 39-40, but does not teach or suggest the specifically claimed compounds. Further, Yaffe and Karol do not cure the deficiencies with Sato, since neither reference teaches or suggests the claimed compounds. Both references teach 1,3,4-thiadiazole compounds (see, Yaffe col. 1, line 57 and Karol col. 1, line 51), but neither teaches the claimed 1,2,4- or 1,4,5-thiadiazole compounds. Accordingly, the proposed combination of Sato in view of Yaffe or Karol does not teach or suggest all of the elements of claim 1 or any claim which depends there from, and reconsideration and withdrawal of the § 103(a) rejection based on Sato in view of Yaffe or Karol are respectfully requested.

Rejection Under 35 U.S.C. § 103(a) Based on Ogano in view of Yaffe or Karol

Regarding claims 1-4 and 6-28, the Examiner argues that Ogano discloses a lubricating oil composition for internal combustion engines which comprises a base oil made of a mineral oil, synthetic oil, or mixtures thereof, incorporated with (A) an overbased calcium salicylate having a TBN in the range of 30-100 mg KOH/g in an amount of 0.05 to 0.90 weight % as calcium, and (B) a succinimide selected from (1) a boron-containing succinimide having a weight-average molecular weight of 3,000 or less at 0.04 weight % or less as boron, and (2) a non-borated succinimide having a weight average molecular weight of 3,000 or less at 0.01 to 0.25 weight % as nitrogen, and (3) mixtures thereof. Ogano allegedly teaches that the oil may

have a kinematic viscosity of 2 to 20 mm²/s at 100°C. The Examiner argues that Ogano allows for the addition of other additives to the composition, including sulfide esters friction reducing agents, dithiocarbamate antiwear agents, and metal deactivators, including benzotriazole and thiadiazole derivatives. Therefore, the Examiner concludes that Ogano teaches the claimed compositions. The Examiner acknowledges that Ogano does not teach the specifically claimed thiadiazole compounds recited in claims 20-24, but takes the position that such compounds are known in the art, as evidenced by Yaffe or Karol. Therefore, the Examiner concludes that it would have been obvious to include such conventional thiadiazole compounds in the lubricant compositions of Ogano. Applicant respectfully traverses this rejection as follows.

By this amendment, claims 6-15, 17, 19, 21-25, 27, and 28 have been canceled and thus the rejection of these claims is rendered moot. Claims 2-4, 16, 18, 20, and 26 are dependent on amended claim 1, which recites a lubricating oil composition containing at least one sulfur-based additive component (C) which may be (C-1) a thiazole compound, (C-2), a thiadiazole compound which may be a 1,2,4- or 1,4,5-thiadiazole compound having formula (8) or (9), or (C-6) a sulfurized ester compound. Ogano generally teaches thiadiazole derivatives in col. 7, line 44, but does not teach or suggest the specifically claimed compounds. Further, Yaffe and Karol do not cure the deficiencies with Ogano, since neither reference teaches or suggests the claimed compounds. Both references teach 1,3,4-thiadiazole compounds (see, Yaffe col. 1, line 57 and Karol col. 1, line 51), but neither teaches the claimed 1,2,4- or 1,4,5-thiadiazole compounds. Accordingly, the proposed combination of Ogano in view of Yaffe or Karol does not teach or suggest all of the elements of claim 1 or any claim which depends there from, and reconsideration and withdrawal of the § 103(a) rejection based on Ogano in view of Yaffe or Karol are respectfully requested.

In view of the preceding Amendments and Remarks, it is respectfully submitted that the pending claims are patentably distinct from the prior art of record and in condition for allowance. A Notice of Allowance is respectfully requested.

Respectfully submitted,
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Enclosure: Petition for Extension of Time two months)